UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,870	02/25/2005	Akira Hommi	12699/13	2120

23838 7590 09/06/2005

KENYON & KENYON
1500 K STREET NW
SUITE 700
WASHINGTON, DC 20005

EXAMINER	
SMITH, TYRONE W	

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H:9

Office Action Summary	Application No.	Applicant(s)	
	10/525,870	HOMMI ET AL.	
	Examiner	Art Unit	
	Tyrone W. Smith	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-22 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 25 February 2005 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2/25/05.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because the description within the drawing is presented in Japanese, Examiner request that the drawings are amended to be presented in English. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to

a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 16 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabata et al (JP10-304514) in view of Tezuka (5195037).

Regarding Claims 1, 16 and 17. Tabata discloses drive force controlling device for hybrid vehicle, which includes an angular acceleration measurement module that measures an angular acceleration of either of the drive shaft and a rotating shaft of the motor (Figure 2 item M) (section [0008] – section [0011]); a first skid detection module that detects a skid due to wheel spin of the drive wheels, based on the measured angular acceleration (section [0008] – section [0011]); a first torque restriction control module that, in response to detection of a skid by the first skid detection module restricts torque output and controls said motor with the restricted torque output, so as to reduce the skid (section [0008] – section [0011]); a first integration module that integrates the angular acceleration, which is measured by the angular acceleration measurement module to give a time integration thereof since detection of the skid by the first skid detection module (section [0008] – section [0011]). Refer to the abstract and sections [0082] – [0094]. However, Tabata does not disclose a first torque restoration control module or similar that, in response to at least a reducing tendency of the skid, restores the torque output, and controls the motor with the restored torque output.

Tezuka discloses torque distribution control for a four-wheel drive motor which includes a first torque restoration control module/torque resetting means (column 9 lines 26-30) that, in response to at least a reducing tendency of the skid, restores the torque output and controls the motor with the restored torque output (column 9 lines 31-34). Refer to column 7 lines 51-68 and column 8 lines 1-41.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Tabata's drive force controlling device for hybrid vehicle with Tezuka's torque distribution

control for a four-wheel drive motor. The advantage of combining the two would provide a system, which may ensure driving stability and steering in accordance with slip or skid conditions.

4. Claims 2-9 and 16-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabata et al (JP10-304514) and Tezuka (5195037) as applied to claims 1 and 17 above, and further in view of Sato et al (4446522).

Regarding Claims 2 and 18.Tabata discloses drive force controlling device for hybrid vehicle, which includes an angular acceleration measurement module that measures an angular acceleration of either of the drive shaft and a rotating shaft of the motor (section [0008] – section [0011]); a first skid detection module that detects a skid due to wheel spin of the drive wheels, based on the measured angular acceleration (section [0008] – section [0011]); a first torque restriction control module that, in response to detection of a skid by the first skid detection module restricts torque output and controls said motor with the restricted torque output, so as to reduce the skid (section [0008] – section [0011]); a first integration module that integrates the angular acceleration, which is measured by the angular acceleration measurement module to give a time integration thereof since detection of the skid by the first skid detection module (section [0008] – section [0011]). Refer to the abstract and sections [0082] – [0094]. However, Tabata does not disclose a first torque restoration control module or similar that, in response to at least a reducing tendency of the skid, restores the torque output, and controls the motor with the restored torque output.

Tezuka discloses torque distribution control for a four-wheel drive motor which includes a first torque restoration control module/torque resetting means (column 9 lines 26-30) that, in response to at least a reducing tendency of the skid, restores the torque output and controls the

motor with the restored torque output (column 9 lines 31-34). Refer to column 7 lines 51-68 and column 8 lines 1-41. However, neither Tabata nor Tezuka discloses comparing the angular acceleration measured with a preset threshold value to detect a skid, and the integrates the angular acceleration over an integration interval when the measured angular acceleration once exceeds the preset threshold value and decreases again below the preset threshold value.

Sato discloses a method of preventing skid of a wheeled vehicle which includes comparing the angular acceleration measured with a preset threshold value to detect a skid, and the integrates the angular acceleration over an integration interval when the measured angular acceleration once exceeds the preset threshold value and decreases again below the preset threshold value (column 18 lines 7-53). Refer to the abstract.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Tabata's drive force controlling device for hybrid vehicle with Tezuka's torque distribution control for a four-wheel drive motor and Sato's a method of preventing skid of a wheeled vehicle. The advantage of combining the inventions prevents skid of wheels of a vehicle, in which the slip rate of a wheel as well as the acceleration and deceleration thereof is used as one of essential factors for controlling the brake torque, and which the brake torque is automatically controlled in a precise and simple manner with high reliability so as to maintain the slip rate within an appropriate range.

Regarding Claims 3-5, 7-9 and 19-21. Tezuka discloses torque distribution control for a four-wheel drive motor which includes a first torque restoration control module/torque resetting means (column 9 lines 26-30) that, in response to at least a reducing tendency of the skid, restores the torque output and controls the motor with the restored torque output (column 9 lines 31-34). Further, Sato controls the motor with varied degrees of restored torque output. Refer to column 7 lines 51-68 and column 8 lines 1-41.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Tabata's drive force controlling device for hybrid vehicle with Tezuka's torque distribution control for a four-wheel drive motor and Sato's a method of preventing skid of a wheeled vehicle. The advantage of combining the inventions prevents skid of wheels of a vehicle, in which the slip rate of a wheel as well as the acceleration and deceleration thereof is used as one of essential factors for controlling the brake torque, and which the brake torque is automatically controlled in a precise and simple manner with high reliability so as to maintain the slip rate within an appropriate range.

Regarding Claims 6 and 22. Tezuka restores the restricted torque output, in response to continuous measurement of a negative level of the angular acceleration for a preset time period by controlling the motor with the restored torque output (column 10 lines 6-51).

It would have been obvious to one of ordinary skill in the art at the time of invention to use Tabata's drive force controlling device for hybrid vehicle with Tezuka's torque distribution control for a four-wheel drive motor and Sato's a method of preventing skid of a wheeled vehicle. The advantage of combining the inventions prevents skid of wheels of a vehicle, in which the slip rate of a wheel as well as the acceleration and deceleration thereof is used as one of essential factors for controlling the brake torque, and which the brake torque is automatically controlled in a precise and simple manner with high reliability so as to maintain the slip rate within an appropriate range.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent art related to the anti-skid device, detection of skidding of an automobile and/or slippage is disclosed in the PTO-892.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tyrone W. Smith whose telephone number is 571-272-2075. The examiner can normally be reached on weekdays from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin, can be reached on 571-272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tyrone Smith
Patent Examiner

Art Unit 2837

MARLON T. FLETCHER
PRIMARY EXAMINER